PART 3 - LOCAL MITIGATION PLANS

Local Mitigation Plan requirements in §201.6 of the Interim Final Rule (the Rule) apply to both local jurisdictions and Tribal governments that elect to participate in FEMA mitigation grant programs as a subapplicant or subgrantee (henceforth referred to as local jurisdictions). The local mitigation planning requirements in this section encourage agencies at all levels, local residents, businesses, and the non-profit sector to participate in the mitigation planning and implementation process. This broad public participation enables the development of mitigation actions that are supported by these various stakeholders and reflect the needs of the community. Private sector participation, in particular, may lead to identifying local funding that would not otherwise have been considered for mitigation activities.

As with State plans, the DMA 2000 requirements for local plans require that communities address only natural hazards. FEMA recommends, however, that local comprehensive mitigation plans address manmade and technological hazards if possible. In many instances, natural disasters have secondary effects, such as dams breaking due to floods, or hazardous material releases due to tornadoes. Multi-hazard plans will better serve communities in the event of such disasters.

States are required to coordinate with local governments in the formation of hazard mitigation strategies, and the local strategies combined with initiatives at the State level form the basis for the State Mitigation Plan. With the information contained in Local Mitigation Plans, States are better able to identify technical assistance needs and prioritize project funding. Furthermore, as communities prepare their plans, States can continually improve the level of detail and comprehensiveness of statewide risk-assessments.

For the Pre-Disaster Mitigation (PDM) program, local jurisdictions must have an approved mitigation plan to receive a project grant. Local jurisdictions must have approved plans by November 1, 2004, to be eligible for Hazard Mitigation Grant Program (HMGP) funding for Presidentially declared disasters after this date. Plans approved at any time after November 1, 2004, will make communities eligible to receive PDM and HMGP project grants.

The sections covered in Part 3 – Local Mitigation Plans include:

- Prerequisites
- Planning Process
- Risk Assessment
- Mitigation Strategy
- Plan Maintenance Process

PREREQUISITES

The local jurisdictions submitting the plan **must** satisfy the following prerequisites before the plan can be approved by FEMA.

ADOPTION BY THE LOCAL GOVERNING BODY

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Requirement §201.6(c)(5):	[The local hazard mitigation plan shall include] documentation that the plan has been formally adopted by the governing body of the jurisdiction requesting approval of the plan (e.g., City Council, County Commissioner, Tribal Council).			
Explanation:	Adoption by the local governing body demonstrates the jurisdiction's commitment to fulfilling the mitigation goals and objectives outlined in the plan. Adoption legitimizes the plan and authorizes responsible agencies to execute their responsibilities. The plan shall include documentation of the resolution adopting the plan.			
Resource:	For more information about adopting the mitigation plan, see:			
	✓ Bringing the Plan to Life (FEMA 386-4), Step 1.			
Scoring:	■ Not Met. The plan has not been formally adopted by the local governing body.			
	■ Not Met. The plan has been formally adopted by the local governing body, but a copy of the signed plan adoption resolution is not included.			
	Met. The plan has been formally adopted by the local governing body and a copy of the signed plan adoption resolution is included.			

MULTI-JURISDICTIONAL PLAN ADOPTION

Requirement §201.6(c)(5):	For multi-jurisdictional plans, each jurisdiction requesting approval of the plan must document that it has been formally adopted.				
Explanation:	In order for multi-jurisdictional plans to be approved, each jurisdiction that is included in the plan must have its governing body adopt the plan before submission to the State and FEMA, even when a regional agency has the authority to prepare such plans in the name of the respective jurisdictions.				
Resource:	For more information about adopting the mitigation plan, see:				
	✓ Bringing the Plan to Life (FEMA 386-4), Step 1.				
Scoring:	■ Not Met. The plan has not been formally adopted by any local governing body.				
	Met. The plan has been formally adopted by at least one local governing body and a copy of each of the signed plan adoption resolutions is included. Alternatively, the agency responsible for submitting the plan may certify that each of the local governing bodies has adopted the plan and that resolutions are available for review at its office.				

MULTI-JURISDICTIONAL PLANNING PARTICIPATION

Requirement §201.6(a)(3):	Multi-jurisdictional plans (e.g., watershed plans) may be accepted, as appropriate, as long as each jurisdiction has participated in the process Statewide plans will not be accepted as multi-jurisdictional plans.				
Explanation:	A multi-jurisdictional plan, as prepared by regional planning and development authorities (e.g., watershed/river basin commission), is acceptable as a Local Mitigation Plan under DMA 2000. However, those jurisdictions within the planning area that do not participate in its development will not be eligible for future mitigation project grant assistance from FEMA. Therefore, the plan must document how each jurisdiction requesting FEMA recognition of the plan participated in the planning process.				
Resource:	For more information on initiating a comprehensive local mitigation planning process, see:				
	✓ Getting Started (FEMA 386-1), Steps 1 – 4.				
Scoring:	■ Not Met. The plan does not describe how each jurisdiction requesting FEMA recognition actively participated in the planning process.				
	■ Met. The plan describes how each jurisdiction requesting FEMA recognition actively participated in the planning process.				

PLANNING PROCESS

§201.6(b) requires that there be an open public involvement process in the formation of a plan. This process shall provide an opportunity for the public to comment on the plan during its formation as well as an opportunity for any neighboring communities, businesses, and other interested parties to participate in the planning process. This public involvement, along with the review of any existing plans, studies, reports, and technical information and incorporation of these in the plan, will assist in the development of a comprehensive approach to reducing losses from natural disasters.

§201.6(c)(1) requires the documentation of the planning process, including how the plan was prepared, who was involved in the process, and how the public was involved.

This section includes the following subsection:

Documentation of the Planning Process

DOCUMENTATION OF THE PLANNING PROCESS

Requirements §201.6(b) and §201.6(c)(1):

An open public involvement process is essential to the development of an effective plan. In order to develop a more comprehensive approach to reducing the effects of natural disasters, the planning process shall include:

- (1) An opportunity for the public to comment on the plan during the drafting stage and prior to plan approval;
- (2) An opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development, as well as businesses, academia and other private and non-profit interests to be involved in the planning process; and
- (3) Review and incorporation, if appropriate, of existing plans, studies, reports, and technical information.

[The plan shall document] the planning process used to develop the plan, including how it was prepared, who was involved in the process, and how the public was involved.

Explanation:

The description of the planning process shall:

- Indicate how the public (residents, businesses, and other interested parties) was given the opportunity to comment on the plan during the drafting stage and prior to plan approval (e.g., public meetings, Web pages, storefronts, toll-free telephone lines, etc.).
- Include a discussion of the opportunity provided for neighboring communities, agencies involved in hazard mitigation, and businesses, academia, and other relevant private and non-profit interests to be involved.
- Describe the review of any existing plans, studies, reports, and technical information and how these are incorporated into the plan.

The plan **shall** document how the plan was prepared (e.g., the time period to complete the plan, the type and outcome of meetings), who was involved in the planning process (e.g., the composition of the planning team), and how the public was involved.

The plan should also document how the planning team was formed and how each party represented contributed to the process. Ideally, the local mitigation planning team is composed of local, State, and Federal agency representatives, as well as community representatives, local business leaders, and educators.

Special Considerations:

The planning team *should* consider adding a general description of the jurisdiction in this section or in the introduction of the plan. The description can include a socio-economic, historic, and geographic profile to provide a context for understanding the mitigation actions that will be implemented to reduce the jurisdiction's vulnerability.

Resource:

For more information on the planning process; ideas on identifying stakeholders and building the planning team, generating public interest, enlisting partners, and choosing an appropriate public participation model; and advice to local governments seeking to initiate a comprehensive local mitigation planning process, see:

✓ Getting Started (FEMA 386-1), Steps 1 – 3.

Examples:



Original Submittal:

The Pleasant County Planning Department has developed a local hazard mitigation plan. The Planning Department formed a planning team composed of representatives from State government, local City governments, community groups, local businesses, and the State University, which is located in Pleasant County. The plan was developed over one year.

REVIEWER'S COMMENTS

RULE SECTION	LOCATION IN THE PLAN	REVIEWER'S COMMENTS
§201.6(b) and §201.6(c)(1)		 The planning process included representatives from many organizations, but there is no mention of opportunities for the public to comment on the plan. The plan does not indicate that an opportunity was provided for neighboring communities, agencies, etc. to be involved in the planning process. The plan does not indicate whether any appropriate existing plans, studies, reports, and technical information were reviewed and incorporated.

Required Revisions:

To receive a "Satisfactory" score, the plan must include more specific details on the planning process and discuss opportunities provided to the public to comment on the plan.



Revised Submittal:

The Pleasant County Planning Department has developed a local hazard mitigation plan. The County Planning Department was responsible for development of the plan. The Planning Department formed a planning team composed of representatives from State government, local City governments, community groups, local businesses, and the State University, which is located in Pleasant County (see Appendix XX for a list of team members). This team met every two weeks for three months and once a month thereafter. The team also held two meetings with adjacent counties to obtain their involvement in the planning process. The plan was developed over one year.

An effort was made to solicit public input during the planning process and four public meetings were held during the formation of the plan: one at the beginning, one after a first draft was produced, one after a final draft was produced, and one public hearing that was held two weeks before the plan was adopted. Citizens could also access the County Hazard Mitigation Plan Web site to provide input.

The State University assisted greatly in the development of the plan by providing graduate students from the Urban Studies and Planning Department to help County Planning Department Staff. The students were very helpful in collecting existing plans, studies, and reports as well as interviewing officials to obtain the latest status on projects identified in plans. The planning team used the information to create a report on upcoming and current projects designed to reduce Pleasant County's vulnerability. The list of documents reviewed is included in Appendix XX. These students helped organize the public meetings and maintained the Web site.

Feedback received from the public proved valuable in the development of the plan. Several comments were received that led to the rethinking of some proposed priority mitigation actions, including some from residents of the rural southern portion of the County that illustrated the need for assistance with maintaining drainage channels. As access to this very rural area is by one-lane or gravel roads, it is often overlooked by the County Public Works Office. During the last heavy rainfall several of the small creeks were blocked by debris, causing backup flooding of several of the properties. Maintenance and clearing of channels are activities that are now included in the flood hazard portion of the Hazard Mitigation Plan.

RISK ASSESSMENT

§201.6(c)(2) of the Rule requires local jurisdictions to provide sufficient information from which to develop and prioritize appropriate mitigation actions to reduce losses from identified hazards. This includes detailed descriptions of all the hazards that could affect the jurisdiction along with an analysis of the jurisdiction's vulnerability to those hazards. Specific information about numbers and types of structures, potential dollar losses, and an overall description of land use and development trends should be included in this analysis. For multi-jurisdictional plans, any risks that affect only certain sections of the planning areas must also be assessed in the context of the affected area.

Recognizing that data may not be readily available to complete the risk assessment at this time, FEMA recommends that plans identify any data limitations. Actions to obtain the data to complete and improve future risk analysis efforts should be included in the mitigation strategy.

While the Rule does not require the use or inclusion of maps as part of the plan, FEMA recommends the use of maps, where appropriate, to illustrate the required risk assessment information. Additionally, addressing manmade hazards in the plan is not necessary to meet the Rule requirements, but is encouraged.

For helpful definitions of risk assessment and related terms, please refer to *Understanding Your Risks* (FEMA 386-2), Appendix A, Glossary.

This section includes the following six subsections as follows:

- Identifying Hazards
- Profiling Hazards
- Assessing Vulnerability: Overview
- Assessing Vulnerability: Identifying Structures
- Assessing Vulnerability: Estimating Potential Losses
- Assessing Vulnerability: Analyzing Development Trends
- Multi-jurisdictional Risk Assessment

IDENTIFYING HAZARDS

Requirement §201.6(c)(2)(i):

[The risk assessment shall include a] description of the type ... of all natural hazards that can affect the jurisdiction

Explanation:

The local risk assessment **shall** identify and describe the hazards likely to affect the area. It is critical that the plan identify all the natural hazards that can affect the jurisdiction, because the hazard identification is the foundation for the plan's risk assessment, which in turn is the factual basis for the mitigation strategy. If the hazard identification omits (without explanation) any hazards commonly recognized as threats to the jurisdiction, this part of the plan cannot receive a "Satisfactory" score.

While not required by the Rule, the plan *should* describe the sources used to identify hazards, and provide an explanation for eliminating any hazards from consideration. The process for identifying hazards could involve the following:

- Reviewing the State hazard mitigation plan, reports, plans, flood ordinances, and land use regulations, among others;
- Talking to experts from Federal, State, and local agencies and universities;
- Searching the Internet and newspapers; and
- Interviewing long-time residents.

Resource:

For more information on identifying hazards, see:

- ✓ Understanding Your Risks (FEMA 386-2), Step 1, Worksheet #1 Identify the Hazards.
- ✓ Integrating Manmade Hazards into Mitigation Planning (FEMA 386-7), Phase 2.
- ✓ Multi-Hazard Identification and Risk Assessment.
- ✓ HAZUS-MH at www.fema.gov/HAZUS/.
- ✓ Firewise at www.firewise.org.

Examples:



Original Submittal:

Pleasant County has identified several hazards to be addressed in the County's Hazard Mitigation Plan. These hazards were identified during the development of the County's plan based on input from Planning Committee members, and were determined to be the hazards that

present the highest risk for the County.

The Pleasant County Mitigation Plan addresses the following hazards:

- Hurricanes
- Flooding
- Terrorism

REVIEWER'S COMMENTS

RULE SECTION	LOCATION IN THE PLAN	REVIEWER'S COMMENTS		
§201.6(c)(2) (i)		 It is not clear if the County identified all relevant hazards. The County did not indicate how the hazards were identified. 		

Required Revisions:

To receive a "Satisfactory" score, the plan must include coastal erosion as a hazard since a portion of the County lies along the coast.



Revised Submittal:

Pleasant County has identified several hazards to be that are addressed in the County's Hazard Mitigation Plan (Table 1). These hazards were identified during the development of the County's plan based on input from Planning Committee members, and were determined to be the hazards that present the highest risk for the County. through an extensive process that utilized input from Planning Committee members (comprised of representatives from County agencies, City governments, local businesses, community groups, State Emergency Management Offices, and the State University), public input, researching past disaster declarations in the County, a review of current FIRMs, and risk assessments completed by the County Emergency Management Agency.

The Pleasant County Mitigation Plan addresses the following hazards:

- Hurricanes
- Flooding
- Terrorism

In addition, the County Planning Agency is developing a GIS database that will map the County's infrastructure, critical facilities, and land uses. Initial data from this study was also used to determine those hazards that present the greatest risk to the County.

Table 1: Hazards in Pleasant County

Hazard	How identified	Why identified
Hurricanes	Review of past disaster declarations Input from County Department of Natural Resources Input from residents Risk Assessments	The County is hit almost every year by a hurricane Hurricanes have caused damage (personal and property), flooding, and evacuation situations
Flooding (Riverine and Coastal)	 Review of FIRMs Input from County Planning Office Risk Assessments Public input Review of past disaster declarations Identification of NFIP repetitive loss properties in the County 	 Associated with the effects of hurricanes, which hit the County frequently Several repetitive loss properties are located in the County The County contains many rivers and streams, and is located along the coast
Coastal Erosion	 Input from County Planning Office Input from County Department of Natural Resources Input from the State University (conducting shoreline research) Public input 	 The County is undergoing development pressure along the coast Coastline stabilization measures have been implemented in the past year Related to hurricane frequency
Terrorism	 Input from local utility company Public input 	 Nuclear power plant is located in the County Heightened sense of security since September 2001

PROFILING HAZARDS

Requirement §201.6(c)(2)(i):

[The risk assessment shall include a] description of the ... location and extent of all natural hazards that can affect the jurisdiction. The plan shall include information on previous occurrences of hazard events and on the probability of future hazard events.

Explanation:

The description of each hazard **shall** include the following information:

- The location or geographical areas in the community that would be affected.
- The hazard extent (i.e., magnitude or severity) of potential hazard events. For those hazards not geographically determined, plans shall indicate their applicable intensity. For example, in areas where tornadoes occur, plans should indicate the recorded intensities of previous events.
- The **probability**, likelihood, or frequency that the hazard event would occur in an area.

The plan **shall** also provide a discussion of **past occurrences** of hazard events in or near the community. This discussion *should* include:

- Information on the damages that occurred (e.g., costs of recovery, property damage, and lives lost) to the extent practicable.
- Level of severity (i.e., flood depth or extent, wind speeds, earthquake intensity, etc.).
- Duration of event.
- Date of occurrence.
- Sources of information used or consulted for assembling a history of past occurrences.

When appropriate, the hazard analysis *should* also identify on a map the areas affected by each identified hazard. Additionally, a composite map (i.e., a map showing combined information from different thematic map layers) *should* be provided for hazards with a recognizable geographic boundary (i.e., hazards that are known to occur in particular areas of the jurisdiction, such as floods, coastal storms, wildfires, tsunamis, and landslides).

The characterization of hazards *should* describe the conditions, such as topography, soil characteristics, meteorological conditions, etc., in the area that may exacerbate or mitigate the potential effects of hazards.

The hazard analysis *should* be detailed enough to allow identification of the areas of the jurisdiction that are most severely affected by each hazard.

PART 3 - LOCAL MITIGATION PLANS

The plan *should* describe the analysis or sources used to determine the probability, likelihood, or frequency of occurrence as well as the severity or magnitude of future hazard events.

The plan *should* note any data limitations and identify and include in the mitigation strategy actions for obtaining the data to complete and improve future risk analysis efforts.

Special Considerations:

Although not required by the Rule, a discussion of repetitive flood loss properties is appropriate to include in the plan. A repetitive loss property is a property that is currently insured through the NFIP, for which two or more losses (occurring more than 10 days apart) of at least \$1,000 each have been paid within any 10-year period since 1978.

Resource:

For more information on profiling hazards, see:

- ✓ Understanding Your Risks (FEMA 386-2), Step 2.
- ✓ HAZUS-MH at www.fema.gov/HAZUS/.
- ✓ Firewise at www.firewise.org.

Examples:



Original Submittal:

Sandy County is subject to riverine and flash flooding throughout large sections of the County. There have been several flooding incidents in the County. A severe flash flood occurred in June of 2000, and the Mud River reached 100-year flood levels in 1996.

Many factors within the County affect the type and severity of flooding, including the mountains, the location of development, the amount of snow and rainfall received, and the large, wide floodplain of the Mud River.

REVIEWER'S COMMENTS

RULE SECTION	LOCATION IN THE PLAN	REVIEWER'S COMMENTS
§201.6(c)(2) (i)		 The hazard location is very general. There is no information on the hazard extent and probability of future events. A limited history of flooding was discussed. While not required, the County did not provide a map identifying areas affected by flooding.

MULTI-HAZARD MITIGATION PLANNING GUIDANCE MARCH 2004 3-14

Required Revisions:

For a "Satisfactory" score, the plan must describe the floodplain boundaries and the magnitude or severity of floods; include the probability for floods; and expand on the history of flooding. While the Rule does not require a map, it is useful to provide one with the identified hazard areas.



Revised Submittal:

Sandy County is subject to riverine and flash flooding. throughout large sections of the County. There have been several flooding incidents in the County. A severe flash flood occurred in June of 2000, and the Mud River reached 100 year flood levels in 1996. The County Planning Department has reviewed the County's Flood Insurance Rate Maps (FIRMs) and Flood Insurance Study (FIS), and has worked with the local college to compile a profile of the flooding hazard in the County. The college provided support by completing research on flooding history in the County and entering the data into a GIS database. The GIS program shows the extent and areas affected by past flooding, and is overlain by County tax maps. This, along with the County's FIRMs and FIS, provides a clear picture of areas and structures most vulnerable to flooding (see attached Map X.X, Areas of Sandy County Subject to Flood Hazards).

Riverine Flooding

The central and eastern sections of the County are subject to riverine flooding. This is usually caused by extensive rainfall over a period of several days and can be worsened by snowmelt conditions. The Mud River located in Sandy County has flooded 12 times in the past 75 years; one was a 500-year flood, four were 100-year floods, three were 50-year floods, and four were 10-year floods. The 500-year flood occurred in 1952 and resulted in significant damage to Iron City and Silvertown. The most recent flood was a 100-year flood that occurred in 1996.

The probability of occurrence is expressed as the percent chance that a flood of a specific magnitude will occur in any given year. Table 2 summarizes the associated chance of occurrence for each type of flood the County may experience.

Table 2: Flood Probability of Occurrence			
Flood Return	Chance of		
Intervals	Occurrence in Any		
	Given Year		
10-Year	10%		
50-Year	2%		
100-Year	1%		
500-Year	0.2%		

Many factors within the County affect the type and severity of flooding, including the mountains, the location of development, the amount of snow and rainfall received, and the large, wide floodplain of the Mud River.

The area surrounding the Mud River is subject to flood damage because of the large amounts of rainfall and snowmelt it receives; the wide, flat floodplain; and the large numbers of structures located in the floodplain.

Flash Flooding

The western section of the County is very mountainous with steep slopes and stream valleys. This area receives several large thunderstorms per year that cause intense rainfall for short periods of time, resulting in water flowing down from the mountains, collecting in, and sometimes overtopping the valley streams. There have also been issues with the maintenance and clearing of drainage channels in this area that have resulted in obstructions restricting the flow of water during a storm. Although this area is fairly rural, many of the residents live in the 100-year floodplain because of the steep slopes. These conditions make response and evacuation operations very difficult, adversely affecting the safety of residents.

The most recent incident occurred in June of 2000. A severe thunderstorm produced significant localized rainfall. Two small bridges were washed out and many County residents were stranded. Although no one was injured, several structures were flooded and many residents were cut off from the rest of the County. This event was estimated at a 50-year flood frequency return interval.

ASSESSING VULNERABILITY: OVERVIEW

Requirement §201.6(c)(2)(ii):

[The risk assessment shall include a] description of the jurisdiction's vulnerability to the hazards described in paragraph (c)(2)(i) of this section. This description shall include an overall summary of each hazard and its impact on the community.

Explanation:

An overview of the community's vulnerability assessment is a summary of the hazard's impact to the community's vulnerable structures. This summary **shall** include, by type of hazard, a general description of the types of structures (e.g., buildings, infrastructure, and critical facilities) affected by the hazard.

The overview **shall** also include a general description of the extent of the hazard's impact to the vulnerable structures. This information can be presented in terms of dollar value or percentages of damage. The Plan *should* note any data limitations and identify and include in the mitigation strategy actions for obtaining the data necessary to complete and improve future vulnerability assessments.

Special Considerations:

While the Rule does not require a discussion about the number of people or special populations at risk, such as the elderly, disabled, or others with special needs, FEMA recommends their consideration in the risk assessment to enable the development of appropriate actions to assist such populations during or after a disaster.

Resource:

For a discussion on preparing a vulnerability assessment, see:

- ✓ Understanding Your Risks (FEMA 386-2), Step 3, Worksheet #3a Inventory Assets.
- ✓ HAZUS-MH at www.fema.gov/HAZUS/.
- ✓ Firewise at www.firewise.org.

Examples:



Original Submittal:

Lake County is mostly susceptible to flooding and fire hazards. Based on Planning Department data, the structures at risk are those located within the 100-year and 500-year floodplain areas, which are the communities of Rocky Lake and Grandview. Structures susceptible to damage from flooding include five storm shelters, one hospital, the local communication utility company, one wastewater treatment plant, and an old industrial site containing hazardous waste.

The structures that could be damaged by fire include one school and one hospital located in the rural, wooded portion of the County.

REVIEWER'S COMMENTS

RULE SECTION	LOCATION IN THE PLAN	REVIEWER'S COMMENTS		
§201.6(c)(2) (ii)		 The plan did not describe the potential damages by hazard. 		

Required Revisions:

The plan must provide information on the potential impact of floods and wildfires. This information may be provided in general terms and estimates to give an idea of how significant the hazard is.



Revised Submittal:

Lake County is mostly susceptible to flooding and fire hazards. Based on Planning Department data, the structures at risk are those located within the 100-year and 500-year floodplain areas, which are the communities of Rocky Lake and Grandview. It is estimated that a total of 30 homes are at risk, which is 16% of the residential structures in the County. Structures susceptible to damage from flooding include five storm shelters, one hospital, the local communication utility company, one wastewater treatment plant, and an old industrial site containing hazardous waste. These structures are considered critical facilities for the County, and structural flood damages for these sites could cost up to \$1 million for a 100-year flood. However, when considering the impact of loss of service provided by these facilities, the damages can exceed \$5 million.

The structures that could be damaged by fire include one school and one hospital located in the rural, wooded portion of the County. However, these two sites provide shelter and emergency health services to the County as well. Fire damages to these structures could greatly impact emergency response operations and result in potential loss of lives and damages of approximately of \$2 million.

ASSESSING VULNERABILITY: IDENTIFYING STRUCTURES

Requirement §201.6(c)(2)(ii) (A):

The plan should describe vulnerability in terms of the types and numbers of existing and future buildings, infrastructure, and critical facilities located in the identified hazard areas

Explanation:

This information list should be based on an inventory of existing and proposed buildings, infrastructure, and critical facilities (structures) located within identified hazard area boundaries. Buildings can include residential, commercial, industrial, and municipal buildings; infrastructure. such as roadways, water utilities, and communication systems; and critical facilities, such as shelters and hospitals. The structure description can also include construction characteristics (e.g., year built). The community should determine how best to indicate structures that are vulnerable to more than one hazard.

The community should determine how far into the future they wish to go in considering proposed buildings, infrastructure, and critical facilities, including planned and approved development. The information on future structures may be based on their comprehensive plan or land use plan.

The Plan should document the process and sources used to identify existing and future structures. If data are not readily available for buildings and infrastructure, the Plan should provide information on critical facilities within the identified hazard areas and identify the collection of data for buildings and infrastructure as an action item in the mitigation strategy.

Special Considerations:

While not required by the Rule, structures located within areas that have repeatedly flooded should be inventoried and information collected on past flood insurance claims. The plan *should* describe the repetitive loss neighborhoods without identifying specific properties.

Resource:

For a discussion on identifying vulnerable structures and preparing a detailed inventory, see:

- ✓ Understanding Your Risks (FEMA 386-2), Step 3, Worksheets #3a and #3b Inventory Assets.
- HAZUS-MH at www.fema.gov/HAZUS/.
- ✓ Firewise at www.firewise.org.

Examples:



Original Submittal:

The Hazard Mitigation Plan for Rocky County identified critical facilities located in the County and the hazards to which these facilities are susceptible. A critical facility is defined as a facility in either the public or private sector that provides essential products and services to the general public, is otherwise necessary to preserve the welfare and quality of life in the County, or fulfills important public safety, emergency response, and/or disaster recovery functions.

The critical facilities identified in the County are storm shelters; hospitals and other health care facilities; gas, electric, and communication utilities; water and wastewater treatment plants; hazardous waste sites; and schools (see attached Map XX - Critical Facilities and Hazard Vulnerability).

The Rocky County Planning Department used GIS and other modeling tools to map the County's critical facilities and determine which are most likely to be affected by hazards. The two hazards most likely to impact the County are flooding and wildfires. The analysis revealed the following:

Flooding Hazard: A 100-year flood would have an impact on five storm shelters, one hospital, one elderly housing project, the local communication utility company, one wastewater treatment plant, and an old industrial site containing hazardous waste.

Fire Hazard: Brush fires could have an impact on one school and one hospital located in the rural, wooded portion of the County.

In addition to critical facilities, the County contains at risk populations that were factored into a vulnerability assessment. These include a relatively large population of elderly residents with limited mobility.

REVIEWER'S COMMENTS

RULE SECTION	LOCATION IN THE PLAN	REVIEWER'S COMMENTS		
§201.6(c)(2) (ii)(A)		 The plan did not discuss future vulnerability. 		

Required Revisions:

For a "Satisfactory" score, the vulnerability assessment must address future planned development. Although not a requirement, it would be useful for the plan to address the presence of any special populations and describe how the critical facilities were identified.



Revised Submittal:

The Hazard Mitigation Plan for Rocky County identified critical facilities located in the County and the hazards to which these facilities are susceptible. A critical facility is defined as a facility in either the public or private sector that provides essential products and services to the general public, is otherwise necessary to preserve the welfare and quality of life in the County, or fulfills important public safety, emergency response, and/or

PART 3 - LOCAL MITIGATION PLANS

disaster recovery functions.

The critical facilities identified in the County are storm shelters; hospitals and other health care facilities; gas, electric, and communication utilities; water and wastewater treatment plants; hazardous waste sites; and schools (see attached Map XX - Critical Facilities and Hazard Vulnerability).

The Rocky County Planning Department used GIS and other modeling tools to map the County's critical facilities and determine which are most likely to be affected by hazards. The two hazards most likely to impact the County are flooding and wildfires. The analysis revealed the following:

Flooding Hazard: A 100-year flood would have an impact on five storm shelters, one hospital, one elderly housing project, the local communication utility company, one wastewater treatment plant, and an old industrial site containing hazardous waste.

Fire Hazard: Brush fires could have an impact on one school and one hospital located in the rural, wooded portion of the County.

In addition to critical facilities, the County contains at risk populations that were factored into a vulnerability assessment. These include a relatively large population of elderly residents with limited mobility.

An analysis of the County Comprehensive Plan indicates that there is a slight but constant increase in residents expected over the next 20 years. By comparing the existing land use map and the land use plan map found in Appendix XX, it is apparent that most of the residential development is expected to occur in the already developed areas outside of the 100-year floodplain. Some areas of future growth are in the urban-wildland interface. The Comprehensive Plan identifies two future planned developments of 100 units each near the Old Growth National Forest.

ASSESSING VULNERABILITY: ESTIMATING POTENTIAL LOSSES

Requirement §201.6(c)(2)(ii) (B):

[The plan should describe vulnerability in terms of an] estimate of the potential dollar losses to vulnerable structures identified in paragraph (c)(2)(i)(A) of this section and a description of the methodology used to prepare the estimate

Explanation:

Describing vulnerability in terms of dollar losses provides the community and the State with a common framework in which to measure the effects of hazards on vulnerable structures. The Plan *should* include an estimate of losses for the identified vulnerable structures. An estimate *should* be provided for each hazard, and *should* include, when resources permit, structure, contents, and function losses to present a full picture of the total loss for each asset. Where data are limited, the planning team can select the most likely event for each hazard and estimate the losses for that event. In this way, the planning team can identify parts of the jurisdiction that could suffer the greatest losses.

The methodology used to determine losses *should* also be provided. The Plan *should* note any data limitations and identify and include in the implementation strategy actions for obtaining the data to complete and improve future risk assessment analysis efforts.

Special Considerations:

Use of maps is not required by the Rule. However, a composite loss map depicting high potential loss areas will help the community develop its mitigation priorities based on residential and economic loss potential.

Resource:

For a step-by-step method for estimating losses, see:

- ✓ Understanding Your Risks (FEMA 386-2), Step 4.
- ✓ HAZUS-MH at www.fema.govj/HAZUS/.

For information regarding U.S. Forest Service guidelines see:

✓ www.fs.fed.us.

For further information regarding wildland/urban interface see:

✓ Firewise at www.firewise.org.

Examples:



Original Submittal:

The Rocky County Planning Department has used GIS modeling, field inspections, and historical data to estimate the potential dollar losses if the County were to experience flooding and wildfires, the two most likely hazards to occur in the County. The vulnerable structures were identified earlier in the planning process.

The County will have an estimated \$10 million of damage during a major flood, and an estimated \$3 million of damage in a severe wildfire.

REVIEWER'S COMMENTS

RULE SECTION	LOCATION IN THE PLAN	REVIEWER'S COMMENTS
§201.6(c)(2) (ii)(B)		 The plan did not specify which structures would be damaged, and by what hazard. The costs were not broken down for each type of structure likely to be damaged. The plan does not describe the methodology used.

Required Revisions:

To receive a "Satisfactory" score, the plan must include an estimate for each structure likely to be damaged and the methodology used. Although not a requirement, a map showing the structures likely to be damaged, along with estimates of damage, would be helpful.



Revised Submittal:

The Rocky County Planning Department has used GIS modeling, field inspections, and historical data to estimate the potential dollar losses if the County were to experience flooding and wildfires, the two most likely hazards to occur in the County. The vulnerable structures were identified earlier in the planning process.

The County will have a more detailed inventory of buildings and facilities when it completes its update of the County Asset Database. Further, historical data regarding erosion, debris buildup, substantial damage, and repetitive loss and flood high water marks can be plotted (see Table 2.1) once that data are complete. This information can then be added to GIS data sets for plotting on map products. From the flood estimation tables described on pages 4-12 and 4-15 in the FEMA document *Understanding Your Risks: Identifying Hazards and Estimating Losses* (FEMA 386-2), the County can plot loss estimation values and provide them for use for each political jurisdiction along with corresponding GIS map products. See the Mitigation Strategy section for implementation details.

Table 2.1: Infrastructure Flood Loss History Impacts					
Category	Erosion	Debris	Substantial Damage	Repetitive Loss	High Water Mark
Residential					
Agriculture					
Banking/Financial					
Chemical					
Public Bldgs					
Public Health					
Telecom					
Transportation					

The County will have an estimated \$10 million dollars damage during a major flood, and an estimated \$3 million dollars damage in a severe wildfire. The County used the guidelines in *Understanding Your Risks* to develop a cost estimate for damages. The estimated costs are as follows:

Potential flood losses:

Residential properties (including senior citizens home): \$2.5 million

Local hospital: \$3 million

Schools: \$2 million

Communication utility company: \$1 million Waste water treatment plant: \$1.5 million

See attached Map XX, Estimated Flood Losses by Location and Type of Structure.

In speaking with the State Forest Ranger area office, the County Planning Department can obtain valuable risk assessment data and historical loss data regarding wildland areas in the County. As with the plotting of infrastructure data described above, wildland-urban fire risk data can be plotted and added to GIS data sets for mapping wildfire risks. See the implementation details of the data gathering effort in the Mitigation Strategy section.

The planning team used the methodology for estimating wildfire damages found on pages 4-36 to 4-37 of *Understanding Your Risks* (FEMA 386-2). See Appendix XX for the Wildfire Hazard Rating Form completed for each jurisdiction. The following summarized the results of the loss estimate.

Potential Wildfire losses:

Residential properties: \$1 million

Hospital: \$1.5 million

Secondary school: \$500,000

See attached Map XY, Estimated Wildfire Losses by Location and Type of Structure.

ASSESSING VULNERABILITY: ANALYZING DEVELOPMENT TRENDS

Requ	irement
§201.	6(c)(2)(ii)
(C):	

[The plan should describe vulnerability in terms of] providing a general description of land uses and development trends within the community so that mitigation options can be considered in future land use decisions.

Explanation:

The plan *should* provide a general overview of land uses and types of development occurring within the community. This can include existing and proposed land uses as well as development densities in the identified hazard areas and any anticipated future changes. This information provides a basis for making decisions on the type of mitigation approaches to consider, and the locations in which these approaches should be applied. This information can also be used to influence decisions regarding future development in hazard areas. A land use map would be useful to depict the descriptive information.

The Plan *should* note any data limitations and identify and include in the mitigation strategy actions for obtaining the data necessary to complete and improve the risk assessment in the future.

Resource:

For more information on development trends, consult with your local or regional planning officials.

Examples:



Original Submittal:

Friendly County is centrally located in the State and is largely rural; the main land use is farming. Jasperville City is located along the northern border of the County along the Big River.

Other land uses within the County consist of: industrial and commercial areas, residential areas, park land and open space, and specialized land use designations (institutional, mixed-use).

The County has been dealing with some residential development pressure in the region surrounding Jasperville. Otherwise, the County does not expect any significant changes in land use or development pressure.

REVIEWER'S COMMENTS

RULE SECTION	LOCATION IN THE PLAN	REVIEWER'S COMMENTS
§201.6(c)(2) (ii)(C)		Although the plan lists the land uses it does not indicate whether there is any anticipated change in land uses that would increase vulnerability to hazards.

Required Revisions:

To receive a "Satisfactory" score, the plan must indicate if there are any planned land use changes, or anticipated development, particularly in or near hazard areas.



Revised Submittal:

Friendly County is centrally located in the State and is largely rural; the main land use is farming. The largest city, Jasperville City, is located along the northern border of the County along the Big River. Other land uses within the County consist of: industrial and commercial areas, located in and around Jasperville; residential areas, located in the suburbs surrounding Jasperville; park land and open space, located largely in the eastern section of the County; farmland, which is a majority of the County; and specialized land use designations (institutional, mixed-use) located in the City. These are generally in conformance with current zoning and are expected to remain in the current use for the foreseeable future.

The County has been dealing with some residential development pressure in the region surrounding Jasperville. The suburbs of Jasperville have recently undergone residential development pressure as several large companies have opened offices in the City within the past year, attracting new residents to the area. The County Planning Office has indicated that the residential development pressure surrounding Jasperville is the largest concern with respect to future land use decisions and hazard mitigation planning. The Big River floods periodically and many of the newly developing residential areas are located in close proximity to the Big River. The current County Comprehensive Plan shows future growth in these areas at a rate of 3% annually in the residential areas and 1% annually in the non-residential areas. The zoning of these areas allows this growth to occur with no zoning changes for the next 20 years, which is the horizon for the Comprehensive Plan.

County Planners indicate that there is a current inventory of vacant or re-developable land that can accommodate the projected growth with no additional zoning changes, so the areas likely to experience growth are the areas now zoned for development. Table XXX shows the projected amount of growth by category and intensity of land use for the next 20 years and Map XXX shows the amount of land that corresponds to the growth. The areas of anticipated growth are those identified by County Planning Staff as the most likely to be developed in this planning horizon.

Otherwise, the County does not expect any significant changes in land use or development pressure. The remainder of the County is not expected to undergo development pressure, and the Planning Office does not anticipate any significant changes in land use.

MULTI-JURISDICTIONAL RISK ASSESSMENT

Requirement
§201.6(c)(2)(iii):

For multi-jurisdictional plans, the risk assessment must assess each jurisdiction's risks where they vary from the risks facing the entire planning area.

Explanation:

The multi-jurisdictional plan **must** present information for the general planning area as a whole as described in the previous paragraphs. However, where hazards and associated losses occur in only part of the planning area, this information **must** be attributed to the particular jurisdiction in which they occur. Further, where unique construction characteristics occur, they *should* be indicated on the plan so that appropriate mitigation actions are considered.

Resource:

For more information on creating a detailed risk assessment, see:

- ✓ Understanding Your Risks (FEMA 386-2), Steps 1 4.
- ✓ HAZUS-MH at www.fema.govj/HAZUS/.
- ✓ Firewise at www.firewise.org.

Examples:



Original Submittal:

Rumble County is a large County centrally located in the State. Within the County, there are several municipalities. All of these jurisdictions contributed to the risk assessment analyses performed for the County Hazard Mitigation Plan (see preceding Section XX).

All jurisdictions within the County are subject to riverine flooding, which has been determined to be the greatest risk for the County.

REVIEWER'S COMMENTS

RULE SECTION	LOCATION IN THE PLAN		REVIEWER'S COMMENTS
§201.6(c)(2) (iii)		•	The plan does not indicate if and how each participating jurisdiction's risk varies from that of the overall County.

Required Revisions:

To receive a "Satisfactory" score, the plan must document if any particular jurisdictions are subject to additional risks or if they have unique situations that require special consideration.



Revised Submittal:

Rumble County is a large County centrally located in the State. Within the County, there are several municipalities. All of these jurisdictions contributed to the risk assessment analyses performed for the County Hazard Mitigation Plan (see preceding Section XX).

All jurisdictions within the County are subject to riverine flooding, which has been determined to be the greatest risk for the County.

Riverine flooding was identified as the most significant risk to the County and is addressed in the Mitigation Plan. However, two jurisdictions within the County have unique situations that require additional mitigation actions. Separate risk assessments were performed for each jurisdiction.

Rocky Township has been recognized by the State Historic Preservation Office as being a Heritage Preservation and Tourism Area because of its distinct, historic character. The township's downtown appears much as it did in the early 1900's. However, the township has several threatened historic structures, some of which lie in the town's 100-year floodplain. One such structure is the Rocky Mining Company Shipping Office, which now serves as a museum chronicling the township's mining past. The elevation of the structure's first floor lies 5 ft. below the 100-year flood elevation.

Quartz City contains a nuclear power plant that supplies power to the entire County. This power plant presents additional risks due to terrorism or malfunction of the plant's safety controls. The increased security and radiation control actions identified in the Mitigation Plan are limited to Quartz City.

MITIGATION STRATEGY

§201.6(c)(3) of the Rule requires jurisdictions to develop a mitigation strategy. Specifically, the Local Hazard Mitigation Plan must "include a mitigation strategy that provides the jurisdiction's blueprint for reducing the potential losses identified in the risk assessment, based on existing authorities, policies, programs and resources, and its ability to expand on and improve these existing tools." This entails the development of goals from which specific mitigation actions and projects will be derived. These goals and actions should be based on the jurisdiction's existing capabilities and its ability to enhance these capabilities. All mitigation actions must be prioritized according to a cost-benefit review, with a focus on how effective the actions are expected to be with respect to their cost. For multi-jurisdictional plans, each jurisdiction must show the specific actions they will undertake.

This section includes the following four subsections:

- Local Hazard Mitigation Goals
- Identification and Analysis of Mitigation Actions
- Implementation of Mitigation Actions
- Multi-jurisdictional Mitigation Actions

LOCAL HAZARD MITIGATION GOALS

Requirement §201.6(c)(3)(i):

[The hazard mitigation strategy shall include a] description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards.

Explanation:

The community's hazard reduction goals, as described in the plan, along with any corresponding objectives, guide the development and implementation of mitigation actions. This section **shall** list the goals intended to reduce or avoid the effects of the identified hazards addressed in the risk assessment.

The description *should* include how goals were developed. The goals could be developed early in the planning process and refined based on the risk assessment findings, or developed entirely after the risk assessment is completed. They *should* also be compatible with the goals of the community as expressed in other community plan documents.

Although the Rule does not require a description of objectives, communities are highly encouraged to include objectives developed to achieve the goals so that reviewers understand the connection between goals, objectives, and activities.

The goals and objectives should:

- Be based on the findings of the local and State risk assessments; and
- Represent a long-term vision for hazard reduction or enhancement of mitigation capabilities.

Resource:

For more information on developing local mitigation goals and objectives, see:

Developing the Mitigation Plan (FEMA 386-3), Step 1.

Special Considerations:

Goals are general guidelines that explain what you want to achieve. They are usually long-term and represent global visions, such as "eliminate flood damage."

Objectives define strategies or implementation steps to attain the identified goals. Unlike goals, objectives are specific, measurable, and may have a defined completion date. Objectives are more specific, such as "adopt a zoning ordinance prohibiting new development in the floodplain."

(From Developing the Mitigation Plan [FEMA 386-3], Step 1.)

Examples:



Original Submittal:

The Rumble County Hazard Mitigation Planning Committee identified the following goal to guide the implementation of the County's hazard mitigation strategies:

Minimize future damage due to hazards.

REVIEWER'S COMMENTS

RULE SECTION	LOCATION IN THE PLAN	REVIEWER'S COMMENTS
§201.6(c)(3) (i)		 While the plan includes a goal, it is very general and does not reflect the findings of the risk assessment. Although not required, the plan does not mention objectives that will be used to achieve the goals.

Required Revisions:

To receive a "Satisfactory" score, the plan must describe goals to reduce or avoid losses from the identified hazards. Additionally, it would be helpful to include the objectives that will be used to achieve the goals.



Revised Submittal:

The Rumble County Hazard Mitigation Planning Committee identified the following goal to guide the implementation of the County's hazard mitigation strategies. held a 2-day workshop to review and analyze the risk assessment studies that were performed for the County. The Committee developed goals and objectives based on the risk assessment studies and selected those that were determined to be of greatest benefit in hazard reduction to the County. The goals and objectives are as follows:

- Minimize future damage due to hazards.
- Goal 1: Reduce flood damage in the County.
 - Objective 1.1: Minimize future damage due to flooding of the Big River.
- Goal 2: Reduce economic impact of droughts.
 - Objective 2.1: Minimize damage to local crops due to drought situations.
- Goal 3: Reduce threat of contamination from the nuclear power plant.
 - Objective 3.1: Maintain the safe operation of the nuclear power plant located in the County.

MULTI-HAZARD MITIGATION PLANNING GUIDANCE

IDENTIFICATION AND ANALYSIS OF MITIGATION ACTIONS

Requirement §201.6(c)(3)(ii):

[The mitigation strategy shall include a] section that identifies and analyzes a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of each hazard, with particular emphasis on new and existing buildings and infrastructure.

Explanation:

The local jurisdiction **shall** list potential loss reduction actions it has identified in its planning process and evaluate various actions that achieve the community's goals and objectives to reduce or avoid the effects of the identified hazards. Mitigation actions **shall** address **existing** and **new** buildings and infrastructure.

Not all of the mitigation actions identified may ultimately be included in the community's plan due to limited capabilities, prohibitive costs, low benefit/cost ratio, or other concerns. The process by which the community decides on particular mitigation actions *should* be described. This description can include who participated in the evaluation and selection of actions. The information will also be valuable as part of the alternative analysis for the National Environmental Policy Act (NEPA) review required if projects are Federally funded.

Special Considerations:

While the Rule does not require a discussion of capabilities, FEMA recommends that jurisdictions, as part of this section, assess their own existing capabilities to implement mitigation actions. This assessment *should* include a discussion of existing mitigation activities in the community, existing regulatory standards, projects that have already been planned, integration with comprehensive planning and capital improvement programs, etc., as well as the jurisdiction's ability to expand on and improve these existing tools.

Resource:

For more information on identifying and evaluating mitigation actions and preparing a capability assessment, see:

- ✓ Developing the Mitigation Plan (FEMA 386-3), Step 2, Worksheet #1 Identify Alternative Mitigation Actions, Job Aid #1: Alternative Mitigation Actions by Hazard, Worksheet #2 State Mitigation Capability Assessment, Worksheet #3 Local Mitigation Capability Assessment, Job Aid #2: Local Hazard Mitigation Capabilities, and Worksheet #4 Evaluate Alternative Mitigation Actions.
- ✓ Integrating Manmade Hazards into Mitigation Planning (FEMA 386-7), Phase 3.
- ✓ Mitigation Resources for Success CD (FEMA 372).
- Mitigation Success Stories and Case Studies at www.fema.gov/fima/success.shtm.
- ✓ Rebuilding for a More Sustainable Future: An Operational Framework (FEMA 365).
- The Natural Hazards Center at www.colorado.edu/hazards.

✓ Flood mitigation success stories from the Association of State Floodplain Managers at www.floods.org.

Examples:



Original Submittal:

Rumble County has identified a number of hazard mitigation actions and projects. The Planning Committee has selected the following actions for Rumble County:

- Revise the County Ordinance to prohibit development in the floodway.
- Work with property owners to implement deed restrictions for open lots/vacant properties along the Big River to prevent development.
- Elevate or floodproof structures.
- Develop water-rationing actions.
- Update radiation safety protocols at the nuclear power plant.

REVIEWER'S COMMENTS

RULE SECTION	LOCATION IN THE PLAN		REVIEWER'S COMMENTS
§201.6(c)(3)		•	The plan did not describe whether a
(ii)			range of various actions were
			considered.

Required Revisions:

To receive a "Satisfactory" score, the plan must describe the approach or analysis used for evaluating a range of actions.



Revised Submittal:

Rumble County has identified a number of hazard mitigation actions and projects. The Planning Committee, with input from local government agencies, the local college, and residents, has selected the following actions as the most beneficial for Rumble County. These actions are listed following the goals and objectives. What follows are the most vulnerable areas identified in the risk assessment and the highest priority mitigation actions identified for those areas.

- Revise the County Ordinance to prohibit development in the floodway.
- Work with property owners to implement deed restrictions for open lots/vacant properties along the Big River to prevent development.
- Elevate or floodproof structures.

- Develop water-rationing actions.
- Update radiation safety protocols at the nuclear power plant.
- Eastern Neighborhood: Located along the Big River and prone to overbank flooding. The Planning Committee recommends embarking on an elevation and floodproofing program, amending the County Ordinance to prohibit development in the Big River floodway, and working with property owners to turn deed restrictions for open lots/vacant properties along the Big River into deed restricted open space.
- Quartz City lies within 25 miles of the nuclear power plant. The Planning Committee recommends the creation of radiation safety protocols to be used in case of an emergency at the nuclear power plant and education of the community on the use of these protocols.
- All of Rumble County is susceptible to drought. The Planning Committee recommends the development of water-rationing actions that will be implemented during a drought situation.

The list below documents the steps we followed in identifying and evaluating mitigation actions. Appendix XX contains a description of actions and their pros and cons by hazard.

- We checked the library of Developing the Mitigation Plan (FEMA 386-3) to find sources of mitigation success stories.
- We sought the opinions of residents and State and local officials.
- We reviewed the State capability assessment in the State Hazard Mitigation Plan.
- We conducted a local capability analysis using the worksheets in Developing the Mitigation Plan (FEMA 386-3) to ascertain what actions could most readily be accomplished by existing programs, plans, personnel, and funds.

The following are the most appropriate actions by goal:

- **Goal 1**: Reduce flood damage in the County.
 - o **Objective 1.1**: Minimize future damage due to flooding of the Big River.
 - Action 1.1.1: Place a restrictive clause in the County Ordinance that will prohibit development in the Big River floodway.

- **Action 1.1.2:** Work with existing floodplain residents to elevate or floodproof their structures, including obtaining funding assistance and technical quidance.
- **Action 1.1.3:** Work with property owners to implement deed restrictions for open lots/vacant properties along the Big River to prevent development.
- Goal 2: Reduce economic impact of droughts.
 - Objective 2.1: Minimize damage to local crops due to drought situations.
 - **Action 2.2.1:** Develop water-rationing actions that will be implemented during a drought situation.
 - Action 2.2.2: Educate residents on the benefits of conserving water at all times, not just during a drought.
 - **Action 2.2.3:** Work with local farmers to investigate the use of more drought-resistant crops.
- **Goal 3:** Reduce the threat of contamination from the nuclear power plant.
 - o **Objective 3.1:** Maintain the safe operation of the nuclear power plant located in the County.
 - **Action 3.3.1:** Work with power plant administrators to increase security actions necessary to prevent a terrorist attack.
 - **Action 3.3.2:** Develop radiation safety protocols to be used in case of an emergency and educate the community on the use of these protocols.
 - **Action 3.3.3:** Work with power plant safety inspectors to ensure that the power plant is meeting or exceeding all safety requirements and develop a plan for enforcing these requirements if necessary.
 - **Action 3.3.4:** Conduct a local public relations campaign to educate residents about the power plant, clearly delineating real threats from imagined.

IMPLEMENTATION OF MITIGATION ACTIONS

Requirement: §201.6(c)(3)(iii):

[The mitigation strategy section shall include] an action plan describing how the actions identified in section (c)(3)(ii) will be prioritized, implemented, and administered by the local jurisdiction. Prioritization shall include a special emphasis on the extent to which benefits are maximized according to a cost benefit review of the proposed projects and their associated costs.

Explanation:

After outlining the mitigation actions to be included in the mitigation strategy, the local jurisdiction **shall** describe the method for prioritizing the order in which actions will be implemented. Considerations that may be used to prioritize actions include: social impact, technical feasibility, administrative capabilities, and political and legal effects, as well as environmental issues.

When prioritizing mitigation actions, local jurisdictions **shall** consider the benefits that would result from the mitigation actions (including projects) versus the cost of those actions. Note that the Rule **does not require** a cost-benefit analysis for actions. However, an economic evaluation is essential for selecting one or more actions from among many competing ones. This (and other considerations) *should* be debated and discussed as part of the planning team's and/or larger community's decision-making process. A possible result of these local discussions *could* be the decision to complete a formal cost-benefit evaluation of the various mitigation approaches that are technically appropriate for the situation. However, this is not required to be included in the plan. The requirement of 44 CFR 201.6 (c)(3)(iii) is met as long as the economic considerations are summarized in the plan as part of the community's analysis of "the comprehensive range of specific mitigation actions and projects being considered" Among ways to address this requirement are:

- Assessing the economic impact of one action compared to another.
- Showing how one type of action costs more than another to achieve the same benefit.
- Showing that funding is available for one type of action but not another.
- Demonstrating that the economic goals of your community are better served by one action instead of another.

This section **shall** also include how actions will be implemented and administered. The plan **shall** include the agency or personnel responsible for carrying out the actions, the funding sources, and the implementation timeline. This section can also include a cost estimate or budget for each action, when available.

PART 3 - LOCAL MITIGATION PLANS

Resource:

For a detailed description of the development of the action plan, see:

- ✓ Developing the Mitigation Plan (FEMA 386-3), Step 3.
- ✓ Mitigation Benefit Cost Analysis (BCA) Toolkit Compact Disc (CD) this CD includes all of the FEMA BCA software, technical manuals, BCA training course documentation, and other supporting material and BCA guidance. Copies can be obtained by calling FEMA's tollfree BC Hotline at 866,222,3580.

Examples:



Original Submittal:

The City of Sandytown has identified several hazard mitigation actions to be included in the Hazard Mitigation Plan. These actions are as follows:

Table 3: Priority Actions		
Hazard	Action Priority	
Flooding	Acquire and relocate flood-prone structures and repetitive loss properties.	
	Preserve and expand open space along the river. Medium	
Landslides	Determine best management practices (BMPs) regarding slope excavation, drainage conveyance, and grading practices that reduce the risk of landslides.	
	Incorporate BMP findings into City High ordinance.	
Tornado	Study shelter design, and reinforcement and anchoring of manufactured homes. Disseminate the information to residents.	
	Provide funding to residents to help them comply with the above recommendations.	Low

REVIEWER'S COMMENTS

RULE SECTION	LOCATION IN THE PLAN	REVIEWER'S COMMENTS
§201.6(c)(3) (iii)		 The plan does not describe how actions are prioritized. The plan does not indicate the responsible party, funding sources, and timeframe.

MARCH 2004 3 - 37

Required Revisions:

The plan must describe how the mitigation actions are prioritized. The agencies responsible for implementation of the projects must be identified, along with the respective funding sources and implementation timeframe.



Revised Submittal:

The City of Sandytown has identified several hazard mitigation actions to be included in the Hazard Mitigation Plan. These actions are as follows: Table 3: Priority Actions lists actions by hazard. Table 4: Implementation Strategy contains these actions, along with the responsible agency, the funding source, and implementation timeframe.

The Mitigation Planning Team prioritized the actions using the STAPLE+E criteria, a planning tool used to evaluate alternative actions. The following table explains the STAPLE+E criteria.

STAPLE+E Criteria Explanation

S – Social	Mitigation actions are acceptable to the community if they do not adversely affect a particular segment of the population, do not cause relocation of lower income people, and if they are compatible with the community's social and cultural values.
T – Technical	Mitigation actions are technically most effective if they provide long- term reduction of losses and have minimal secondary adverse impacts.
A – Administrative	Mitigation actions are easier to implement if the jurisdiction has the necessary staffing and funding.
P – Political	Mitigation actions can truly be successful if all stakeholders have been offered an opportunity to participate in the planning process and if there is public support for the action.
L – Legal	It is critical that the jurisdiction or implementing agency have the legal authority to implement and enforce a mitigation action.
E – Economic	Budget constraints can significantly deter the implementation of mitigation actions. Hence, it is important to evaluate whether an action is cost-effective, as determined by a cost benefit review, and possible to fund.
E – Environmental	Sustainable mitigation actions that do not have an adverse effect on the environment, that comply with Federal, State, and local environmental regulations, and that are consistent with the community's environmental goals, have mitigation benefits while being environmentally sound.

Each team member had an equal number of votes to use toward the actions that met the criteria best, based on their knowledge and

MULTI-HAZARD MITIGATION PLANNING GUIDANCE MARCH 2004 3-38

expertise. The mitigation actions with highest priority were the most cost effective and most compatible with the communities' social and cultural values.

As a high priority, we selected the action "Determine best management practices (BMPs) regarding slope excavation, drainage conveyance, and grading practices that reduce the risk of landslides" for a number of reasons. First, amending the ordinance can be done with existing staff, with little extra expense, and relatively quickly. Second, these BMPs can make new construction much less susceptible to landslides and can also be used to improve the site conditions of existing construction; the cost is just a fraction of what engineering solutions or structural retrofits would cost. A summary for the other priority actions selected is included in Appendix XX.

Table 3: Prio	Table 3: Priority Actions		
Hazard	Action	Priority	
Flooding	Acquire and relocate flood-prone structures and repetitive loss properties.	High	
	Preserve and expand open space along the river. Medium		
Landslides	Determine best management practices (BMPs) regarding slope excavation, drainage conveyance, and grading practices that reduce the risk of landslides.		
	Incorporate BMP findings into City ordinance.	High	
Tornado	ado Study shelter design, and reinforcement and anchoring of manufactured homes. Disseminate the information to residents.		
	Provide funding to residents to help them comply with the above recommendations.	Low	

PART 3 - LOCAL MITIGATION PLANS

Table 4: Implementation Strategy

Action/Priority	Responsible Agency	Funding and Timeframe/ Deadline
Determine best management practices (BMPs) regarding slope excavation, drainage conveyance, and grading practices that reduce the risk of landslides. (HIGH)	City of Sandytown Department of Planning and Department of the Environment	Existing staffFall 2004 – Spring 2005
Acquire and relocate flood-prone structures and repetitive loss properties. (HIGH)	City of Sandytown Department of Planning, Department of Environmental Protection, Legal Department	 PDM and HMGP Grants Fall 2004 – Fall 2009
Incorporate BMP findings into City ordinance. (HIGH)	City of Sandytown Department of Planning, City Council	Existing staffSpring 2005 – Fall 2005
Preserve and expand open space along the river. (MEDIUM)	City of Sandytown Department of Planning and Department of the Environment	Green Fund and existing staffOngoing
Study shelter design, and reinforcement and anchoring of manufactured homes. Disseminate the information to residents. (LOW)	City of Sandytown Department of Planning	 Capital Improvement Funding Winter 2005 – Summer 2006
Provide funding to residents to help them comply with the above recommendations. (LOW)	City of Sandytown Mayor and City Council	Special Assistance ProgramOngoing

MULTI-JURISDICTIONAL MITIGATION ACTIONS

Requirement §201.6(c)(3)(iv):

For multi-jurisdictional plans, there must be identifiable action items specific to the jurisdiction requesting FEMA approval or credit of the plan.

Explanation:

The multi-jurisdictional plan **must** contain a section that links the proposed mitigation actions to the applicable jurisdictions. Any jurisdiction within the planning area requesting approval or credit for the Mitigation Plan **must** be able to point to at least one specific action to be pursued. Actions by individual jurisdictions may be part of or contribute to an area-wide mitigation action. The scope of this action may be entirely within the jurisdiction or may be part of a larger action involving some or all of the other jurisdictions covered in the plan.

Resource:

For more information on the development of the action plan, see:

✓ Developing the Mitigation Plan (386-3), Step 3.

Examples:



Original Submittal:

Rumble County's Mitigation Plan encompasses several jurisdictions. Strategies for hazard mitigation within the County were identified to reduce overall damage in the County. These activities will be implemented by the County and participating jurisdictions.

Action	Timeframe / Deadline
Place a restrictive clause in the County Ordinance that will prohibit development in the Big River floodway.	Fall 2004
Work with existing floodplain residents to elevate or floodproof their structures (especially historic structures), including obtaining funding assistance and technical guidance.	Spring 2005 through Spring 2007
Develop water-rationing actions that will be implemented during a drought situation.	Spring 2004 through Winter 2004
Develop radiation safety protocols to be used in case of an emergency and educate the community on the use of these protocols.	Fall 2004

REVIEWER'S COMMENTS

RULE SECTION	LOCATION IN THE PLAN	REVIEWER'S COMMENTS
§201.6(c)(3) (iv)		 The plan does not identify which actions apply to each jurisdiction. The plan does not indicate who will be responsible for implementing the actions or the funding source.

Required Revisions:

For a "Satisfactory" score, the plan must list specific actions by jurisdiction, the responsible parties, and the funding sources.



Revised Submittal:

Rumble County's Mitigation Plan encompasses several jurisdictions. Strategies for hazard mitigation within the County were identified to reduce overall damage in the County. These activities will be implemented by the County and the participating jurisdictions. Although these actions are aimed at reducing overall damage in the County, each jurisdiction will be responsible for pursuing the actions that are relevant to that jurisdiction. The jurisdictions, along with the specific actions they will pursue, are listed as follows:

Table 5: Implementation Strategy

Jurisdiction	Action Responsible Agency		Funding Source and Timeframe/ Deadline		
Rumble County	Place a restrictive clause in the County Ordinance that will prohibit development in the Big River floodway.	Rumble County Planning Department	Staff time Fall 2004		
Rocky Township	Work with existing floodplain residents to elevate or floodproof their structures (especially historic structures), including obtaining funding assistance and technical guidance.	Rocky Township Department of Emergency Services, NFIP Coordinator	 PDM and HMGP Funding Spring 2005 through Spring 2007 		
Rumble County	Develop water-rationing actions that will be implemented during a drought situation.	Department of Environment, Rocky Township, Quartz City, and Rumble County Spring 2004 through Winter 2004			
Quartz City	Develop radiation safety protocols to be used in case of an emergency and educate the community on the use of these protocols.	Quartz City, Department of Planning and Community Development	Staff time Fall 2004		

PLAN MAINTENANCE PROCESS

§201.6(c)(4) requires a formal plan maintenance process to ensure that the Mitigation Plan remains an active and relevant document. The plan maintenance process must include a method and schedule for monitoring, evaluating, and updating the plan at least every five years. This section must also include an explanation of how local governments intend to incorporate their mitigation strategies into any existing planning mechanisms they have, such as comprehensive or capital improvement plans, or zoning and building codes. Lastly, this section requires that there be continued public participation throughout the plan maintenance process.

This section includes the following three subsections:

- Monitoring, Evaluating, and Updating the Plan
- Incorporation into Existing Planning Mechanisms
- Continued Public Involvement

MONITORING, EVALUATING, AND UPDATING THE PLAN

Requirement §201.6(c)(4)(i):

[The plan maintenance process shall include a] section describing the method and schedule of monitoring, evaluating, and updating the mitigation plan within a five-year cycle.

Explanation:

The local jurisdiction **shall** describe the how, when, and by whom the plan will be **monitored**. Monitoring may include periodic reports by agencies involved in implementing projects or activities; site visits, phone calls, and meetings conducted by the person responsible for overseeing the plan; and the preparation of an annual report that captures the highlights of the previously mentioned activities.

The plan **shall** also include a description of how, when, and by whom the plan will be **evaluated**, and *should* include the criteria used to evaluate the plan. The evaluation *should* assess, among other things, whether:

- The goals and objectives address current and expected conditions.
- The nature, magnitude, and/or type of risks has changed.
- The current resources are appropriate for implementing the plan.
- There are implementation problems, such as technical, political, legal, or coordination issues with other agencies.
- The outcomes have occurred as expected.
- The agencies and other partners participated as originally proposed.

The plan **shall** describe how, when, and by whom the plan will be **updated**. The Rule requires that the plan be updated within five years from the date of FEMA approval. FEMA recommends that the plan be reviewed and updated on an annual basis to determine the effectiveness of programs, and to reflect changes in land development or programs that may affect mitigation priorities.

Special Considerations:

If the plan also satisfies the CRS requirements, the flood section may need to be updated more frequently than every five years. States may also have additional requirements. Consult with your FEMA Regional Office or State Hazard Mitigation Officer.

Resource:

For guidance on monitoring, evaluating, and updating the plan, see:

✓ Bringing the Plan to Life (FEMA 386-4), Steps 2-4.

Examples:



Original Submittal:

Rocky County has developed a method to ensure that regular monitoring, evaluation, and update of the Hazard Mitigation Plan occurs. The County Planning Department will be responsible for holding annual meetings with local agencies and other concerned parties to evaluate the Mitigation Plan. The Planning Department will then update the plan as necessary. If no changes are required, the County will give the State Hazard Mitigation Officer justification as to why no changes were deemed necessary.

REVIEWER'S COMMENTS

RULE SECTION	LOCATION IN THE PLAN	REVIEWER'S COMMENTS
§201.6(c)(4) (i)		 The plan does not identify who will be monitoring the implementation of actions. It is not clear how the plan will be monitored. Local agencies and concerned parties to be included in the evaluation are not identified. This section does not describe how the plan will be evaluated.

Required Revisions:

The plan must clearly indicate how, when, and by whom the plan will be monitored, evaluated, and updated.



Revised Submittal:

Rocky County has developed a method to ensure that regular monitoring, evaluation, and update of the Hazard Mitigation Plan occurs. The County Planning Department will be responsible for holding annual meetings with local agencies and other concerned parties to evaluate the Mitigation Plan. The Planning Department will then update the plan as necessary. If no changes are required, the County will give the State Hazard Mitigation Officer justification as to why no changes were deemed necessary.

Rocky County has developed a method to ensure that an annual review and update of the Hazard Mitigation Plan occurs, although FEMA regulations only require an update every five years. The County has formed a Hazard Mitigation Plan Evaluation Committee that consists of members from local agencies and other concerned parties, including elected officials, the County Department of Natural Resources, the County Office of Economic Development, the County Office of Emergency Services, the County DOT, the non-profit Mud River Watershed Society, and representatives from the State University Geography Department. The County Planning Department

is responsible for contacting committee members and organizing the annual meeting. The meeting will be held in March of each year, and committee members will be responsible for monitoring and evaluating the progress of the mitigation strategies in the plan.

The committee will review each goal and objective to determine their relevance to changing situations in the County, as well as changes in State or Federal policy, and to ensure that they are addressing current and expected conditions. The committee will also review the risk assessment portion of the plan to determine if this information should be updated or modified. The parties responsible for the various implementation actions will report on the status of their projects and will include which implementation processes worked well, any difficulties encountered, how coordination efforts were proceeding, and which strategies should be revised.

The Planning Department will then have three months to update and make changes to the plan before submitting it to the Committee members and the State Hazard Mitigation Officer. If no changes are necessary, the State Hazard Mitigation Officer will be given a justification for this determination. Comments and recommendations offered by Committee members and the State Hazard Mitigation Officer will be incorporated into the plan.

In addition, Rocky County has a number of other plans that will consider and integrate the Hazard Mitigation Plan as they undergo their regular updates:

Comprehensive Plan—update due in 2005.

Capital Improvements Plan—update due in 2006.

Historic Preservation Plan—update due in 2007.

The Hazard Mitigation Plan will take into account any changes in these plans and incorporate the information accordingly in its next update.

INCORPORATION INTO EXISTING PLANNING MECHANISMS

Requirement §201.6(c)(4)(ii):

[The plan shall include a] process by which local governments incorporate the requirements of the mitigation plan into other planning mechanisms such as comprehensive or capital improvement plans, when appropriate.

Explanation:

Jurisdictions **shall** indicate how mitigation recommendations will be incorporated into comprehensive plans, capital improvement plans, zoning and building codes, site reviews, permitting, job descriptions, staff training, and other planning tools, where such tools are the appropriate vehicles for implementation.

Communities that do not have a comprehensive plan, or other similar planning mechanisms, *should* explain how the mitigation recommendations would be implemented. Further, for certain mitigation actions that may use other means of implementation, these other tools *should* be described.

Resource:

For more information on incorporating hazard mitigation activities in other initiatives, see:

✓ Getting Started (FEMA 386-1), Step 2.

Examples:



Original Submittal:

Rocky County currently uses comprehensive land use planning, capital improvements planning, and building codes. After the County officially adopts the Hazard Mitigation Plan, these existing mechanisms will have hazard mitigation strategies incorporated into them. This will be done so that planning for hazard mitigation will become an essential part of all County decisions and policies.

REVIEWER'S COMMENTS

RULE SECTION	LOCATION IN THE PLAN	REVIEWER'S COMMENTS
§201.6(c)(4) (ii)		 The plan does not state how planning for hazard mitigation will be incorporated into existing mechanisms, only that it will be done.

Required Revisions:

The plan must indicate how Mitigation Plan requirements will be incorporated into existing planning mechanisms.



Revised Submittal:

Rocky County currently utilizes comprehensive land use planning, capital improvements planning, and building codes. After the County officially adopts the Hazard Mitigation Plan, these existing mechanisms will have hazard mitigation strategies incorporated into them. This will be done so that planning for hazard mitigation will become an essential part of all County decisions and policies.

The Hazard Mitigation Plan Evaluation Committee, which meets on an annual basis, will provide a mechanism for ensuring that the actions identified in the plans are incorporated into ongoing county planning activities.

Rocky County currently utilizes comprehensive land use planning, capital improvements planning, and building codes to guide and control development in the County. After the County officially adopts the Hazard Mitigation Plan, these existing mechanisms will have hazard mitigation strategies integrated into them.

After adoption of the Mitigation Plan, the County will require that local municipalities address hazards in their comprehensive plans and land use regulations. Specifically, one of the goals in the Mitigation Plan directs County and local governments to protect life and property from natural disasters and manmade hazards. The County Planning Department will conduct periodic reviews of the County's comprehensive plans and land use policies, analyze any plan amendments, and provide technical assistance to other local municipalities in implementing these requirements.

The County Building Department is responsible for administering the building codes in local municipalities. After the adoption of the Mitigation Plan, they will work with the State Building Code Office to make sure that the County adopts, and is enforcing, the minimum standards established in the new State Building Code. This is to ensure that life/safety criteria are met for new construction.

The capital improvement planning that occurs in the future will also contribute to the goals in the Hazard Mitigation Plan. The County Natural Resources Department will work with capital improvement planners to secure high-hazard areas for low risk uses.

Within six months of the formal adoption of the Mitigation Plan, the policies listed above will be incorporated into the process of existing planning mechanisms.

MULTI-HAZARD MITIGATION PLANNING GUIDANCE MARCH 2004 3-48

CONTINUED PUBLIC INVOLVEMENT

Requirement §201.6(c)(4)(iii):

[The plan maintenance process shall include a] discussion on how the community will continue public participation in the plan maintenance process.

Explanation:

The plan **shall** describe what opportunities the broader public (i.e., stakeholders who are not part of the planning team) would have during the plan's periodic review to comment on the progress made to date and the proposed plan revisions. Plans *should* describe the mechanisms for keeping the public involved (e.g., holding strategic meetings, posting the proposed changes to the plan on the Web, etc.).

Resource:

For more information on keeping the public involved, see:

- ✓ Getting Started (FEMA 386-1), Step 3.
- ✓ Bringing the Plan to Life (FEMA 386-4), Steps 2 and 3.

Examples:



Original Submittal:

Rocky County is dedicated to involving the public directly in the continual reshaping and updating of the Hazard Mitigation Plan. The Hazard Mitigation Plan Evaluation Committee members are responsible for the annual review and update of the plan. Although they represent the public to some extent, the public will be able to directly comment on and provide feedback about the plan.

REVIEWER'S COMMENTS

RULE SECTION	LOCATION IN THE PLAN	REVIEWER'S COMMENTS
§201.6(c)(4) (iii)		The plan does not provide details about how or when the public will provide
		comments.

Required Revisions:

The plan must describe opportunities for keeping the public involved.



Revised Submittal:

Rocky County is dedicated to involving the public directly in the continual reshaping and updating of the Hazard Mitigation Plan. The Hazard Mitigation Plan Evaluation Committee members are responsible for the annual review and update of the plan. Although they represent the public

MULTI-HAZARD MITIGATION PLANNING GUIDANCE MARCH 2004 3-49

PART 3 - LOCAL MITIGATION PLANS

to some extent, the public will be able to directly comment on and provide feedback about the plan.

Copies of the plan will be catalogued and kept on hand at all of the public libraries in the County. The existence and location of these copies will be publicized in the monthly newsletter sent out by the County Chamber of Commerce. Contained in the plan is the address and phone number of County Planning Department Staff Member(s) responsible for keeping track of public comments on the plan.

In addition, copies of the plan and any proposed changes will be posted on the County Government Website. This site will also contain an email address and phone number to which people can direct their comments or concerns. A link to this site will also be provided on the local Sandy State College Department of Geography and Department of Urban Planning Web pages.

A public meeting will also be held after each annual Mitigation Plan Evaluation Committee meeting. This meeting will provide the public a forum for which they can express concerns, opinions, or ideas about the plan. The County Planning Department will publicize and host this meeting. Following the meeting, the evaluation committee will review the comments and make changes to the plan, as appropriate.